भारतीय मानक

Indian Standard

IS 11834 : 2023

चावल मिलिंग — प्रतीक और प्रवाह आरेख

(पहला पुनरीक्षण)

Rice Milling — Symbols and Flow Diagram

(First Revision)

ICS 67.260

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FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Agriculture and Food Processing Equipment Sectional Committee had been approved by the Food and Agriculture Division Council.

With the ongoing modernization of rice milling system, different modern rice milling equipment are being extensively used in the country. Therefore, it has become necessary to have proper symbols for different components as well as flow diagrams for rice milling process. These symbols would help in proper understanding and drawing of the system.

This standard was originally published in 1986. In this revision, the flow diagram of rice milling process has been updated as per the modern rice milling practices. Further, the existing symbol of rubber roll sheller has been updated and new symbols for modern rice milling equipment such as pneumatically controlled rubber roll sheller, paddy soak tank, paddy parboiling tank, steam boiler, vertical whitener and tempering bin have been added. Also, the standard has been brought out in the latest style and format of the Indian Standards.

The composition of the committee responsible for the formulation of this standard is listed in Annex A.

Indian Standard

RICE MILLING — SYMBOLS AND FLOW DIAGRAM

(First Revision)

1 SCOPE

This standard covers symbols and flow diagrams used in the rice milling process.

2 GENERAL SYSTEM

A general rice milling system is given in Fig. 1.

3 SYMBOLS

3.1 The symbols for various components of equipment used in pre-cleaning, cleaning and dehusking are given in Table 1.

3.2 The symbols for various components of equipment used for separation and grading of paddy, rice, brokens and floury products are given in Table 2.

3.3 The symbols for various components of equipment used for polishing and glazing of rice are given in Table 3.

3.4 The symbols for various accessories are given in Table 4.

4 FLOW DIAGRAM

4.1 Rice milling flow diagram for 1 ton, 2 ton and 4 ton capacity (both row and parboiled paddy) are given in Fig. 2, Fig. 3 and Fig. 4 respectively for guidance.

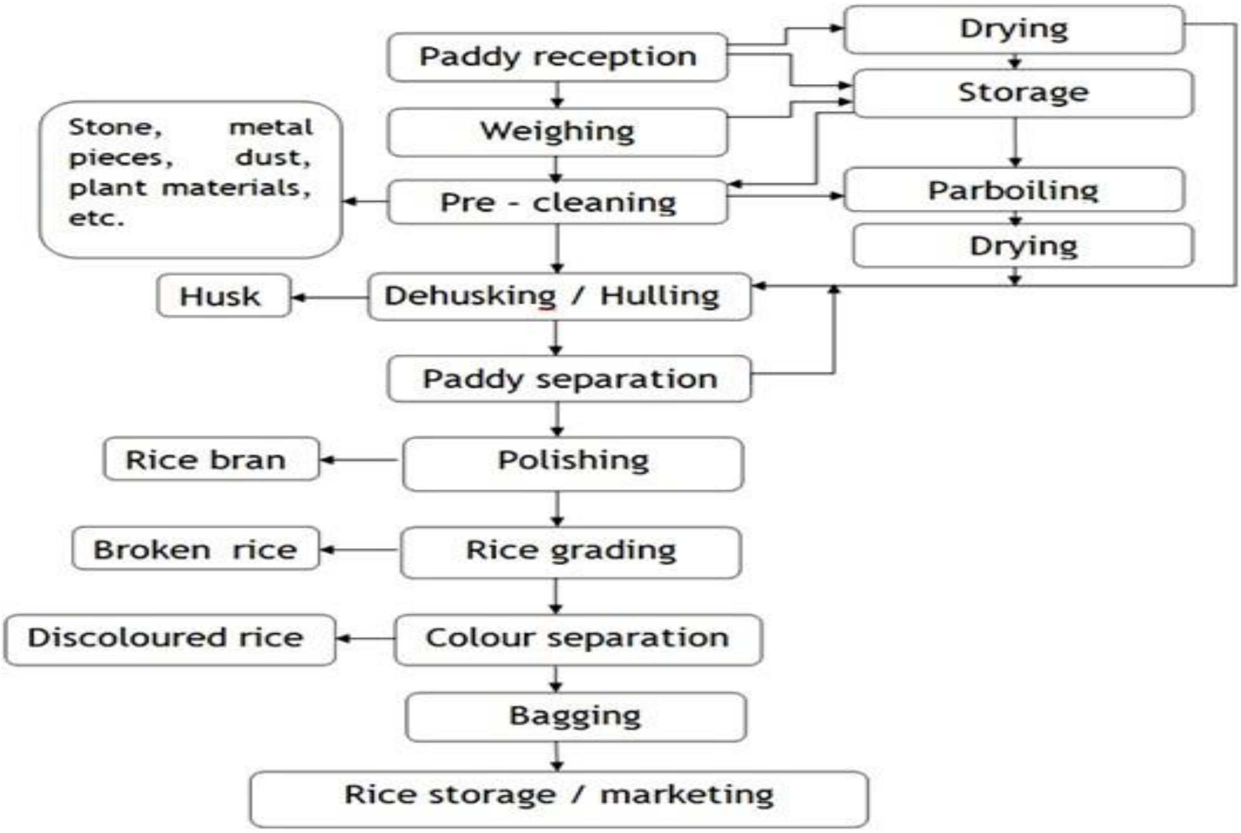


FIG. 1 FLOW DIAGRAM OF THE MODERN RICE MILLING PROCESS

Table 1 Symbols Relating to Pre-Cleaning, Cleaning and Dehusking
(*Clause* 3.1)

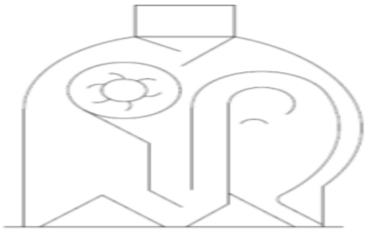
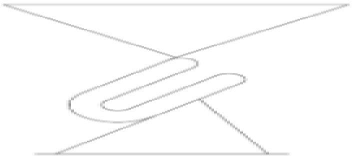
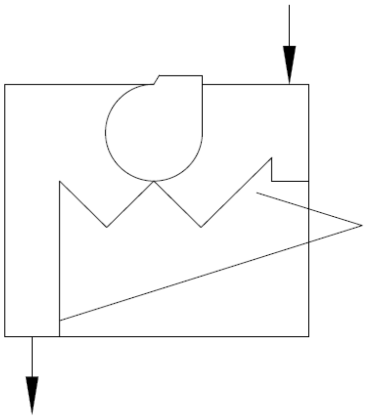
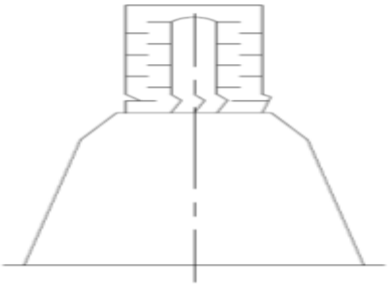
Sl No.	Caption	Symbol
(1)	(2)	(3)
i)	Scalper	
ii)	Magnetic separator	
iii)	Paddy cleaner	
iv)	Vertical debearder (awner)	

Table 1 (*Continued*)

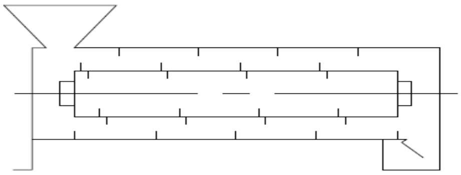
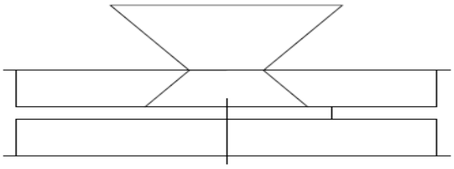
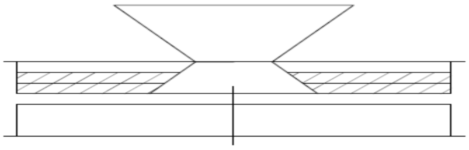
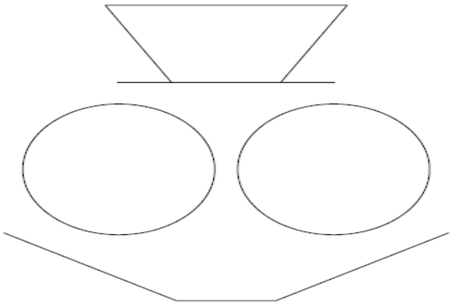
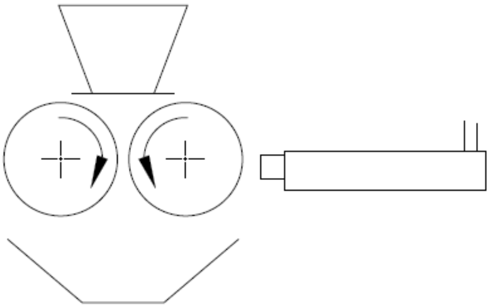
Sl No. (1)	Caption (2)	Symbol (3)
v)	Horizontal debearder (awner)	
vi)	Disc sheller	
vii)	Rubber and disc sheller	
viii)	Rubber roll sheller	
ix)	Pneumatically controlled rubber roll sheller	

Table 1 (*Concluded*)

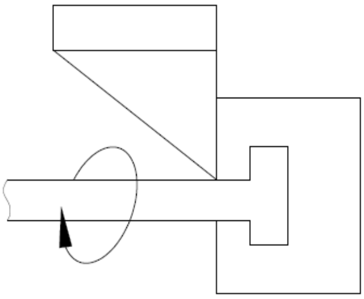
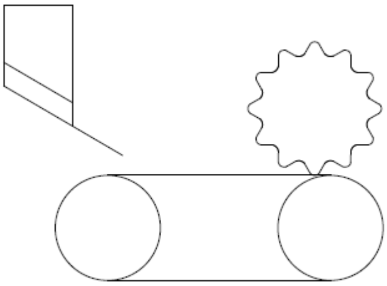
Sl No. (1)	**Caption** (2)	**Symbol** (3)
x)	Centrifugal sheller	
xi)	Rubber belt sheller	

Table 2 Symbols Relating to Separation and Grading
(*Clause* 3.2)

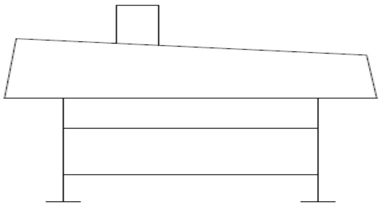
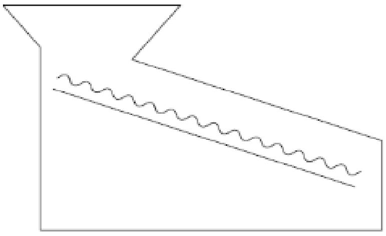
Sl No. (1)	**Caption** (2)	**Symbol** (3)
i)	Paddy separator	
ii)	Static screen paddy separator	

Table 2 (*Continued*)

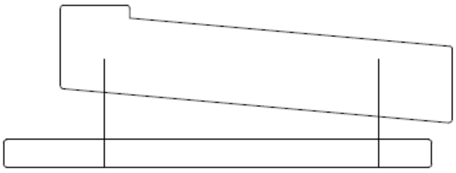
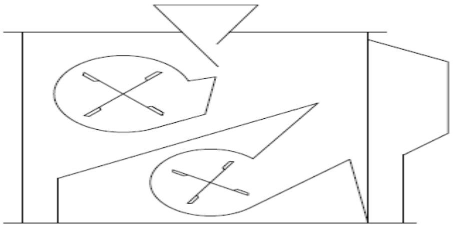
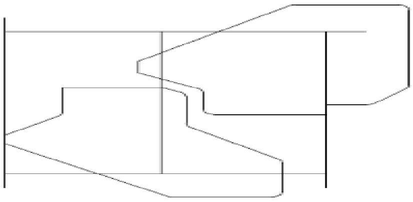
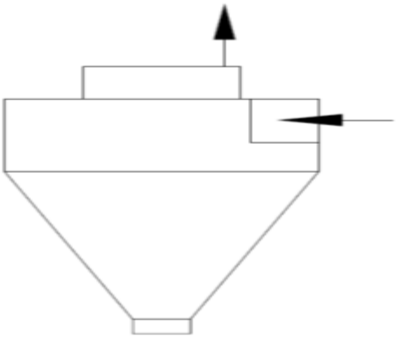
Sl No. (1)	**Caption** (2)	**Symbol** (3)
iii)	Riddle	
iv)	Husk pressure separator	
v)	Husk depression separator	
vi)	Cyclone separator	

Table 2 (*Continued*)

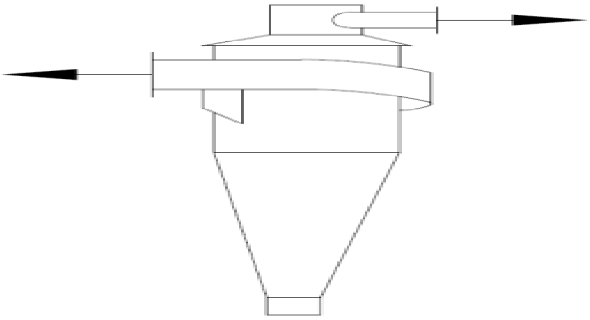
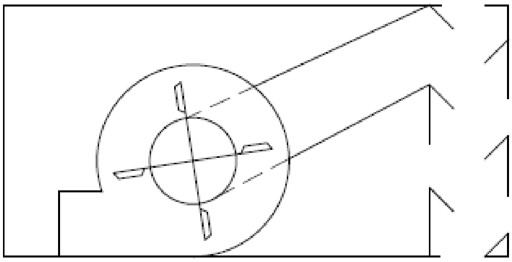
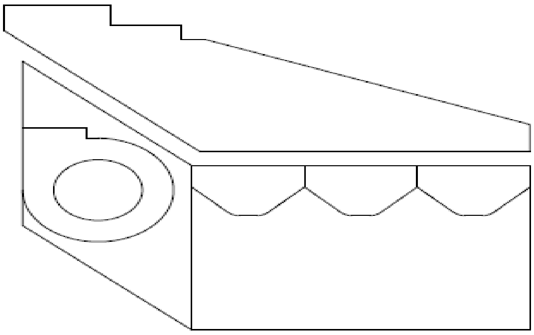
Sl No.	Caption	Symbol
(1)	(2)	(3)
vii)	Super cyclone separator	
viii)	Husk suction separator	
ix)	Specific gravity separator	

Table 2 (*Continued*)

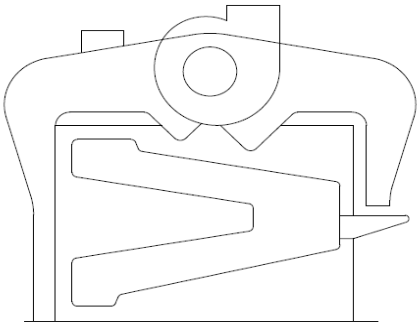
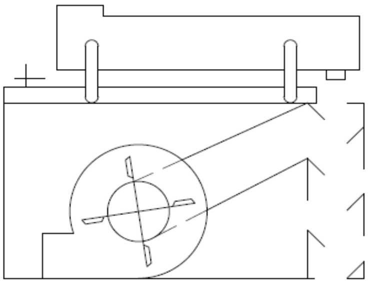
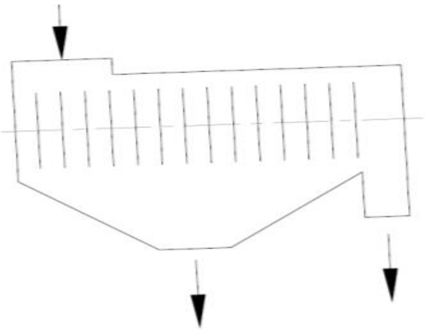
Sl No.	Caption	Symbol
(1)	(2)	(3)
x)	Husk suction separator with a riddle	
xi)	Husk suction separator with a superior riddle	
xii)	Indented disc separator	

Table 2 (*Continued*)

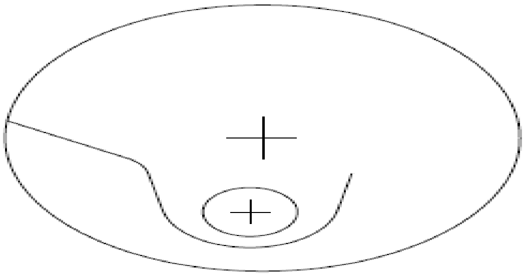
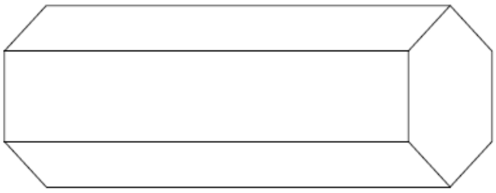
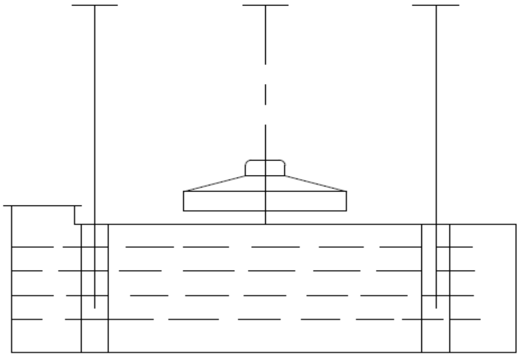
Sl No.	Caption	Symbol
(1)	(2)	(3)
xiii)	Indented cylinder	
xiv)	Hexagonal reel	
xv)	Rotary sieve classifier (plansifter) for milled rice	

Table 2 (*Concluded*)

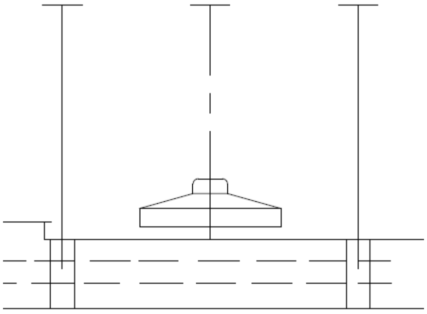
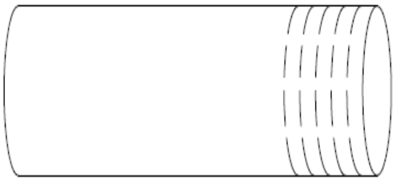
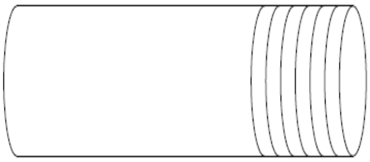
Sl No. (1)	Caption (2)	Symbol (3)
xvi)	Rotary sieve classifier (plansifter) for floury products	
xvii)	Slot perforated grading cylinder	
xviii)	Wire spiral grading cylinder	

Table 3 Symbols Relating to Polishing and Glazing
(*Clause* 3.3)

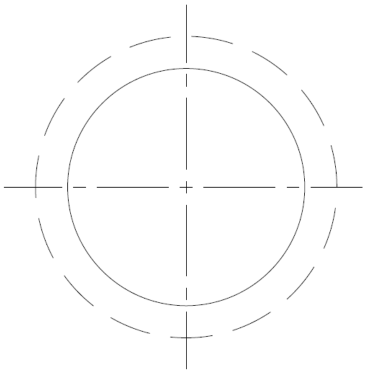
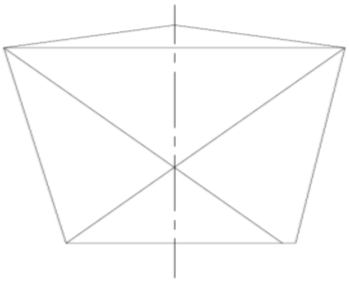
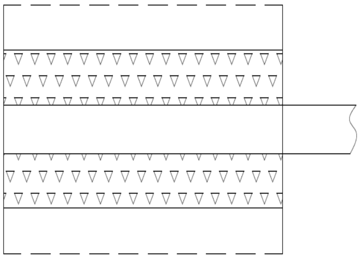
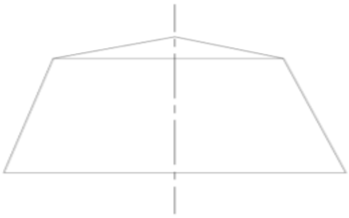
Sl No. (1)	Caption (2)	Symbol (3)
i)	Polisher	
ii)	Cone polisher	
iii)	Horizontal polisher	
iv)	Whitening or pearling cone	

Table 3 (*Continued*)

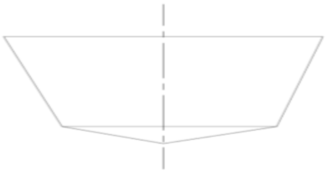
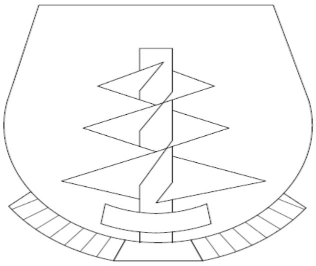
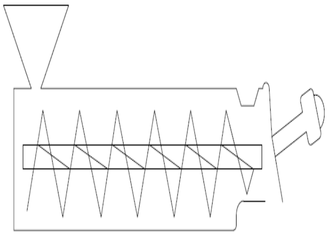
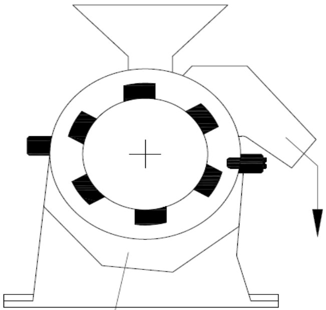
Sl No. (1)	Caption (2)	Symbol (3)
v)	Inverted whitening or pearling cone	
vi)	Helix whitening machine	
vii)	Screw whitener	
viii)	Huller-cum-polisher	

Table 3 (*Continued*)

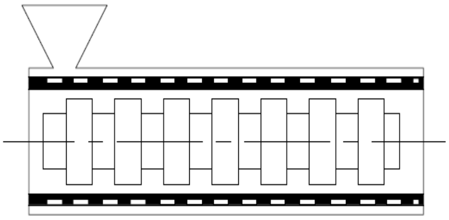
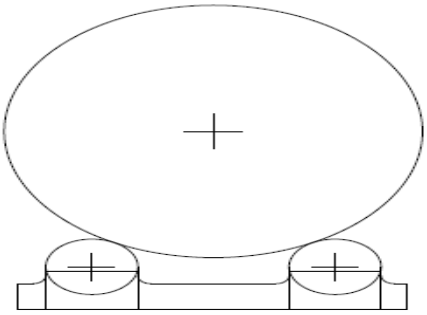
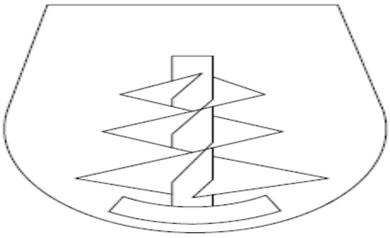
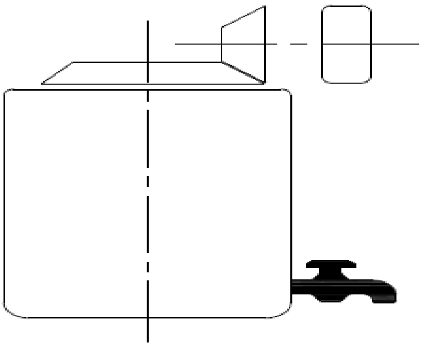
Sl No. (1)	Caption (2)	Symbol (3)
ix)	Hulling and tamping machine	
x)	Glazing drum	
xi)	Helix glazing machine	
xii)	Glucose feed regulator	

Table 3 (*Continued*)

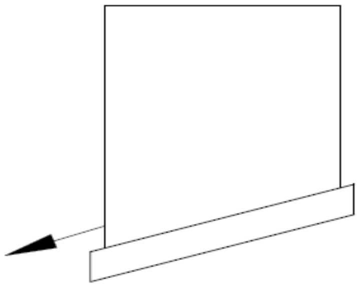
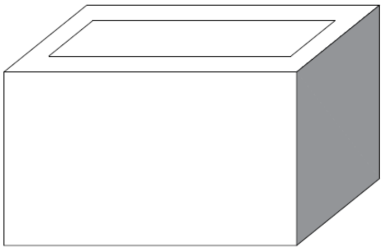
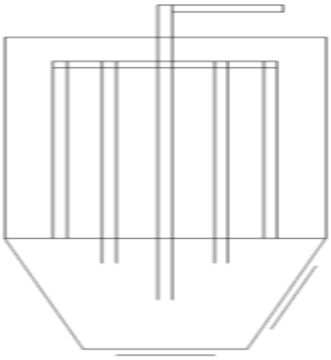
Sl No. (1)	Caption (2)	Symbol (3)
xiii)	Talc feed regulator	
xiv)	Paddy soak tank	
xv)	Paddy parboiling tank	

Table 3 (*Concluded*)

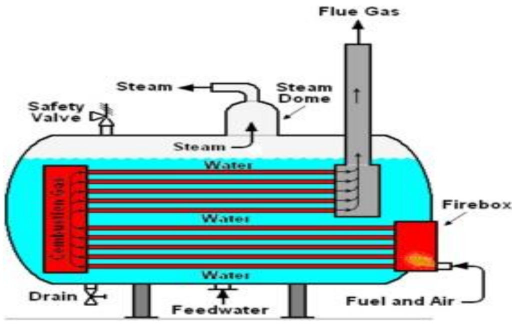
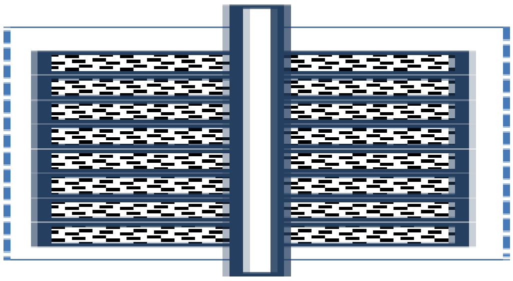
Sl No. (1)	Caption (2)	Symbol (3)
xvi)	Steam boiler	 Flue Gas Steam Steam Dome Safety Valve Steam Water Combustion Gas Water Firebox Water Drain Feedwater Fuel and Air
xvii)	Vertical whitener	

Table 4 Symbols for Accessories

(*Clause* 3.4)

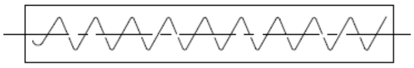
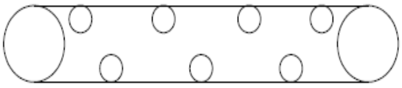
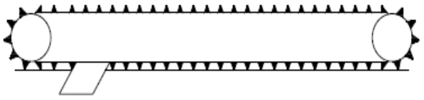
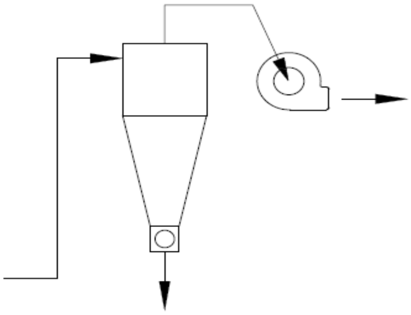
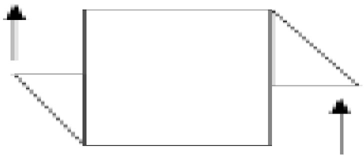
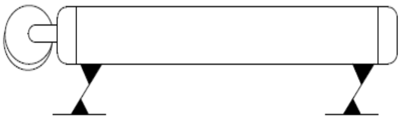
Sl No.	Caption	Symbol
(1)	(2)	(3)
i)	Screw conveyor	
ii)	Belt conveyor	
iii)	Chain conveyor	
iv)	Pneumatic Conveyor	
v)	Bucket elevator	
vi)	Sacking tube conveyor	

Table 4 (*Continued*)

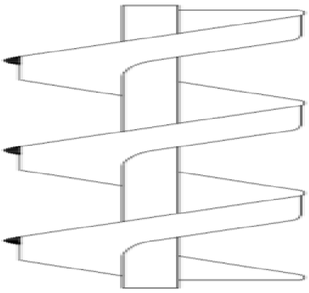
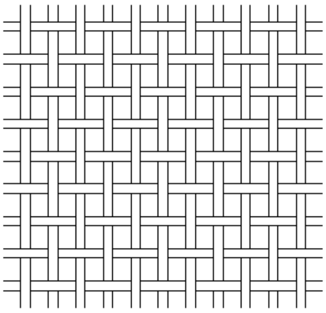
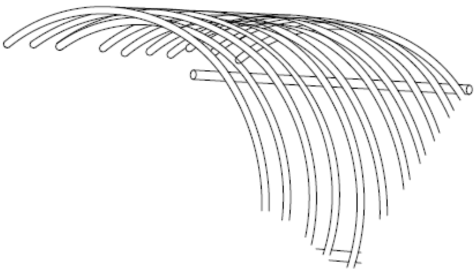
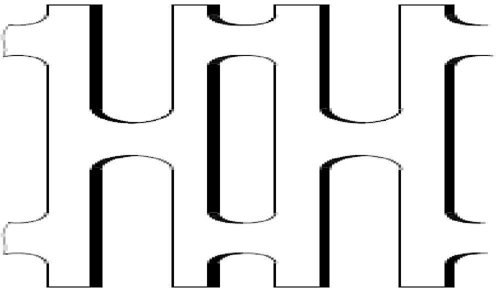
Sl No.	Caption	Symbol
(1)	(2)	(3)
vii)	Spiral sack slid	
viii)	Wire tissue	
ix)	Wire spiral grading sieve	
x)	Slot perforated plate	

Table 4 (*Continued*)

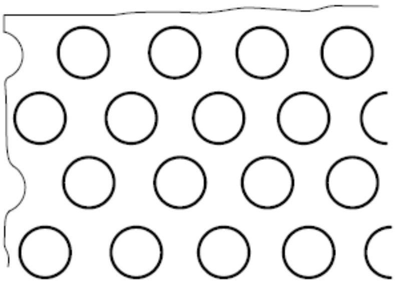
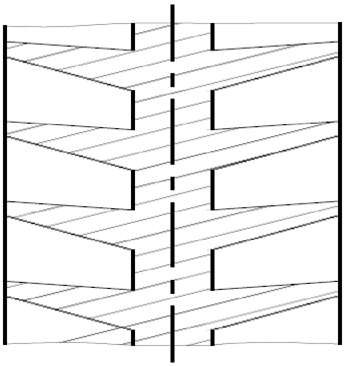
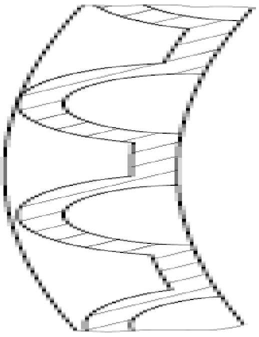
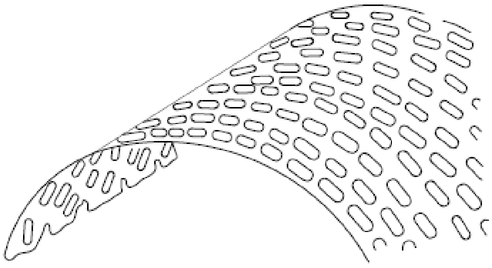
Sl No.	**Caption**	**Symbol**
(1)	(2)	(3)
xi)	Round hole perforated plate	
xii)	Packer discs	
xiii)	Indented discs	
xiv)	Slot perforated grading sieve	

Table 4 (*Continued*)

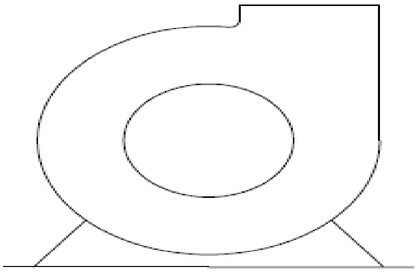
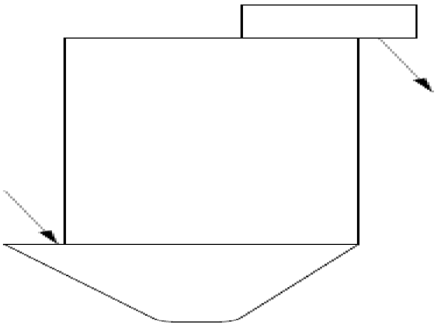
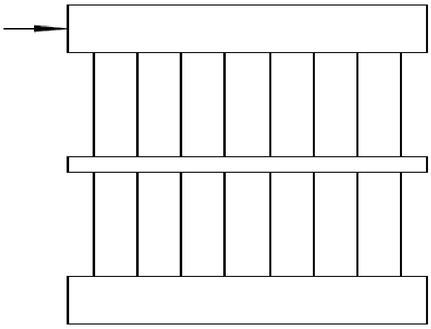
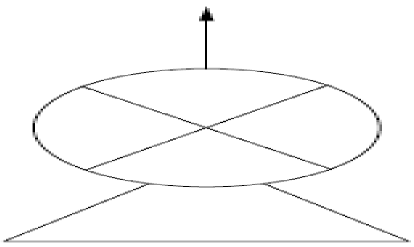
Sl No. (1)	**Caption** (2)	**Symbol** (3)
xv)	Suction fan	
xvi)	Suction filter	
xvii)	Pressure filter	
xviii)	Volumetric measure	

Table 4 (*Continued*)

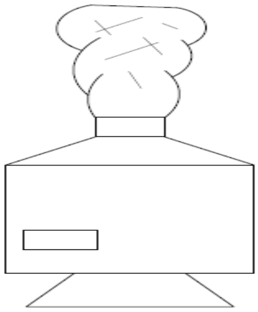
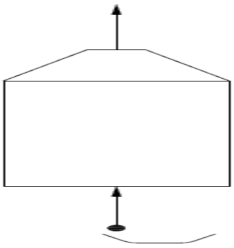
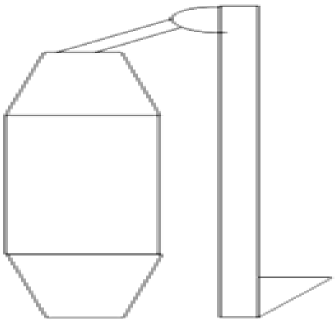
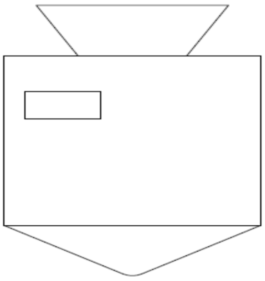
Sl No. (1)	Caption (2)	Symbol (3)
xix)	Sacking scale	
xx)	Bin	
xxi)	Tempering bin	
xxii)	Automatic scale (weighing balance)	

Table 4 (*Continued*)

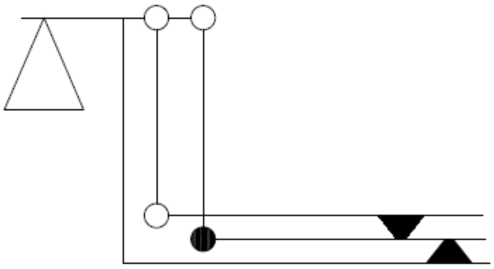
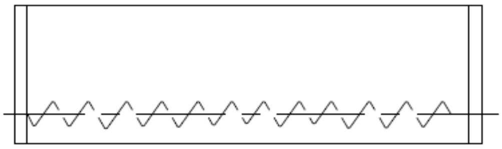
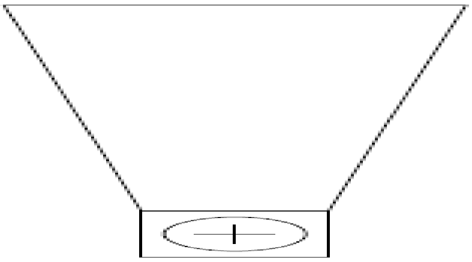
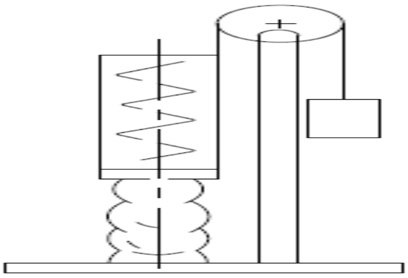
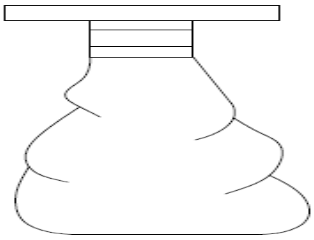
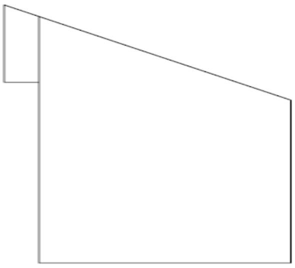
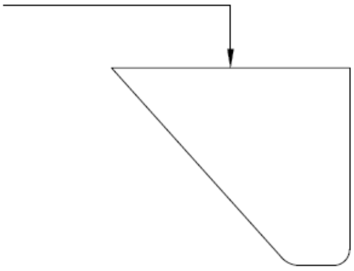
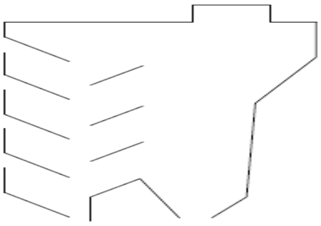
Sl No.	**Caption**	**Symbol**
(1)	(2)	(3)
xxiii)	Beam scale (weighing balance)	
xxiv)	Depression chest with screw conveyor	
xxv)	Mixer	
xxvi)	Bran sacking machine	

Table 4 (*Concluded*)

Sl No. (1)	Caption (2)	Symbol (3)
xxvii)	Sacking spout	
xxviii)	Sacking bin	
xxix)	Hopper	
xxx)	Air cleaner	

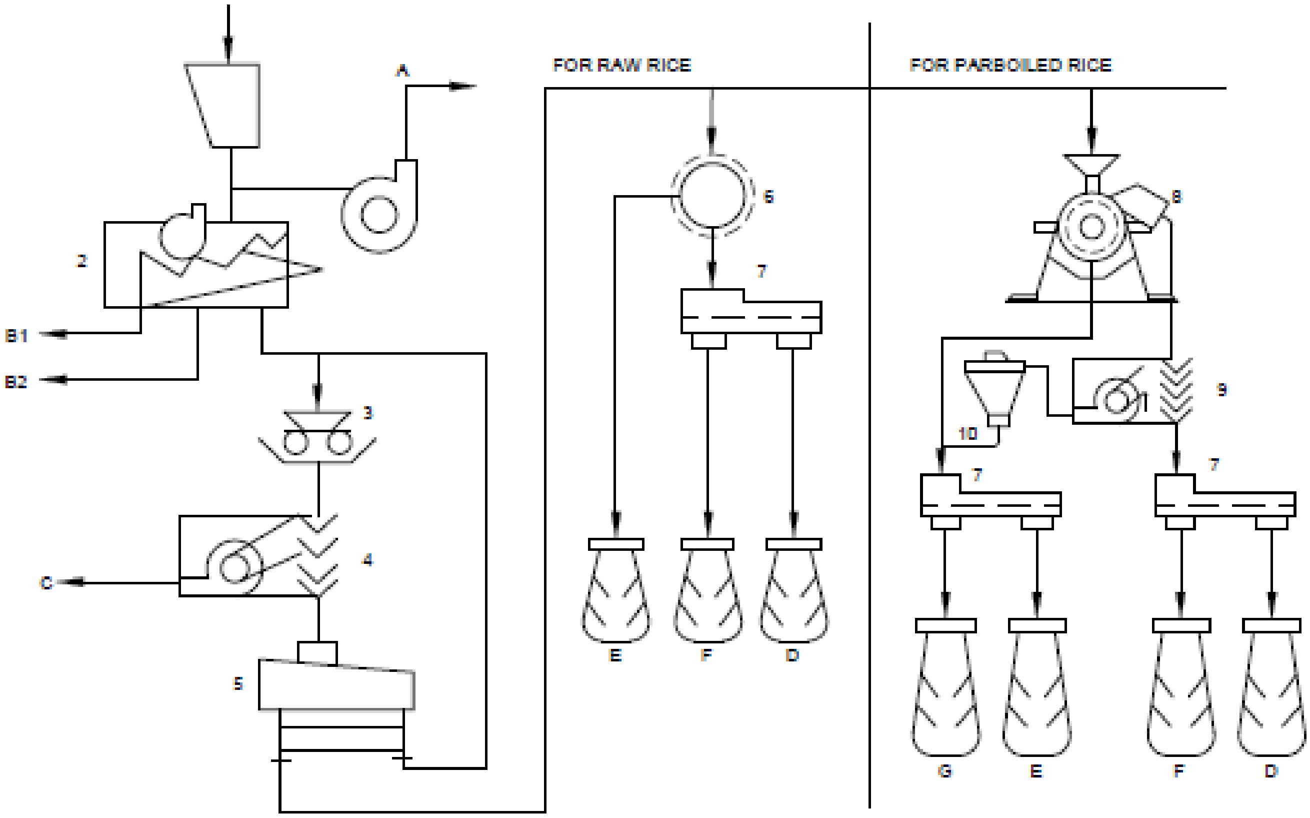


FIG. 2 RICE MILLING DIAGRAM FOR A MILL OF ONE TONNE PER HOUR CAPACITY

Key

1 - Suction blower
2 - Paddy cleaner
3 - Rubber roll sheller
4 - Husk aspirator
5 - Paddy separator
6 - Polisher
7 - Rice grader
8 - Polisher-Huller
9 - Rice aspirator
10 - Cyclone

A - Dust
B1 and B2 - Sand and stone
C - Husk
D - Rice
E - Bran
F - Brokens
G - Coarse bran

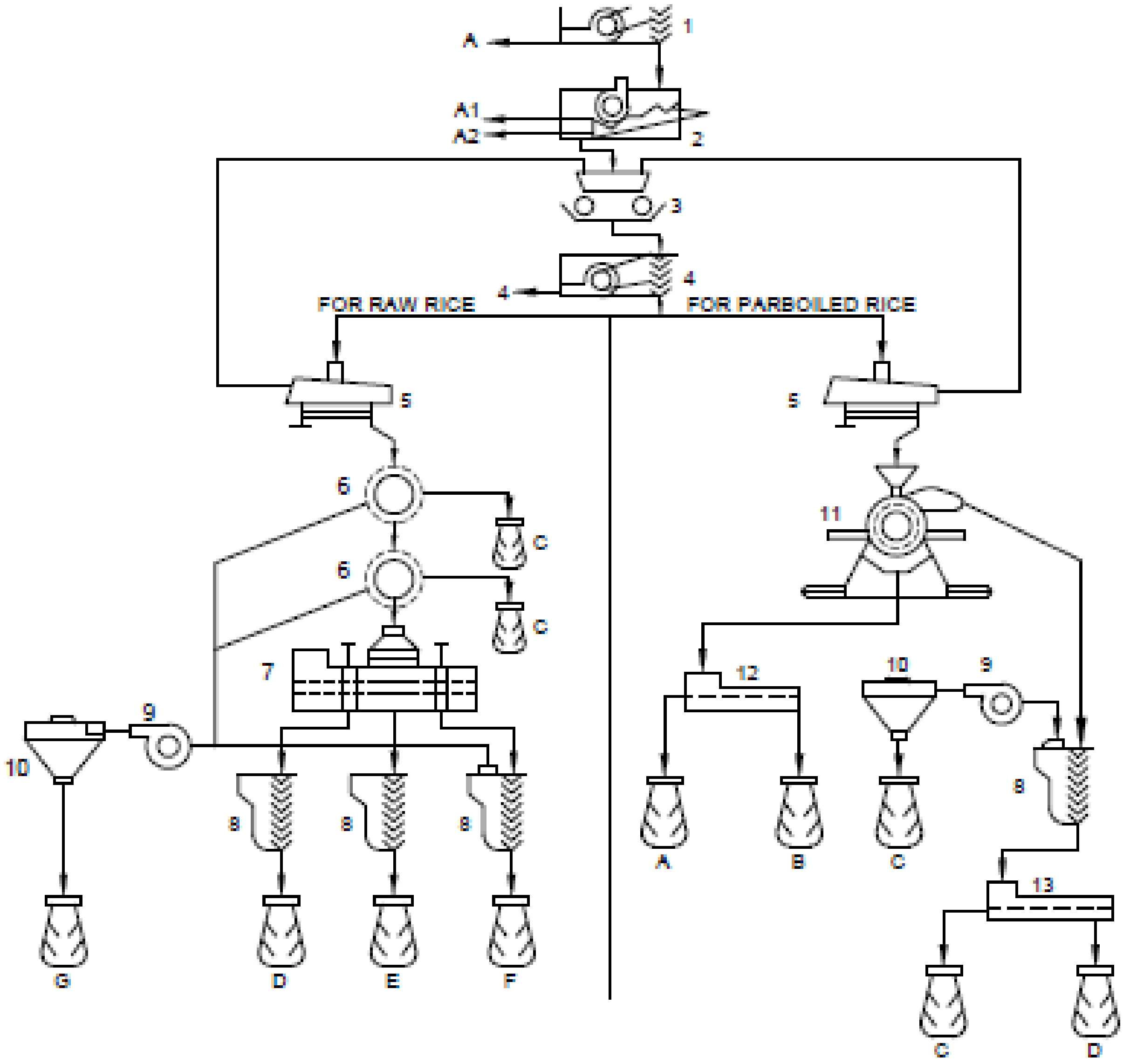


FIG. 3 RICE MILLING DIAGRAM FOR A MILL OF TWO TONNES PER HOUR CAPACITY

Key

1 - Dust aspirator
2 - Paddy cleaner
3 - Rubber roll sheller
4 - Husk separator
5 - Paddy separator
6 - Polisher
7 - Plansifter
8 - Aspiration chamber
9 - Suction blower
10 - Cyclone

11 - Polisher Huller

12 - Rice grader
13 - Brain sieve

A - Dust
A1 and A2 - A1 and A2 - Sand and Stone
B - Husk
C - Bran
D - Rice
E - Big brokens
F - Small brokens
G - Coarse bran

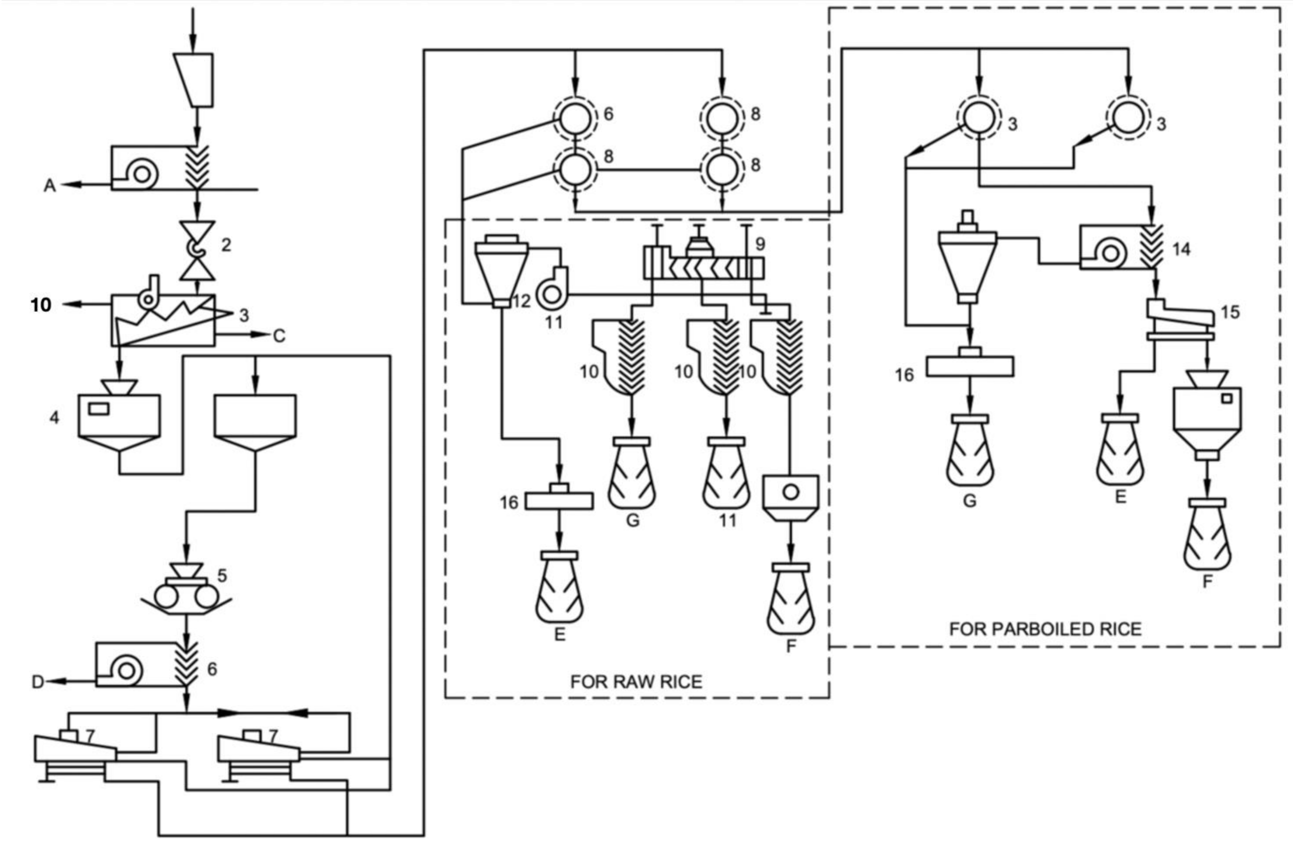


FIG. 4 RICE MILLING DIAGRAM FOR A MILL OF FOUR TONNES PER HOUR CAPACITY

Key

1 - Dust aspirator
2 - Magnetic separator
3 - Paddy cleaner
4 - Auto scale
5 - Rubber roll sheller
6 - Husk aspirator
7 - Paddy separator
8 - Polisher
9 - Plansifter
10 - Aspiration chamber
11 - Suction blower
12 - Cyclone
13 - Sacking scale
14 - Rice aspirator
15 - Rice grader
16 - Bran Stabilizer

A - Dust
B - Bigger impurities
C - Smaller impurities
D - Husk
E - Bran
F - Rice
G - Big brokens
H - Small brokens

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Agriculture and Food Processing Equipment Sectional Committee, FAD 20

Organization	*Representative*(*s*)
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Indosaw Industrial Products Private Limited, Ambala Cantt.	Dr Vinod H. Kalbande
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National Committee on Precision Applications in Horticulture, New Delhi	Shri Anand Zambre
National Institute of Food Technology Entrepreneurship and Management, Sonipat	Dr P. K. Nema

Organization	*Representative*(*s*)
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Northern Region Farm Machinery Training and Testing Institute, Hisar	Shri Mukesh Jain
Osaw Agro Industries Private Limited, Ambala	Shri Jagdish Singh
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and
Shri Pradeep Sharma
Scientist 'B'/Assistant Director
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